Instructions to place at each station:

Station 1: Effect of Changing Particle Size

Warning: *Make sure you do this lab in an open area and keep googles on!*

Whole tablet:

1. Make sure the film canister is dry. Place a ½ tablet of alka seltzer into a film canister.
2. Measure 2 mL room temperature water with the graduated cylinder.
3. Working quickly, pour water into the film canister, snap the lid on and place top down on the ground (see image 1). DO NOT SHAKE. Once it touches the ground, start the timer.
4. When you hear a “pop”, stop the timer. Record time and height.

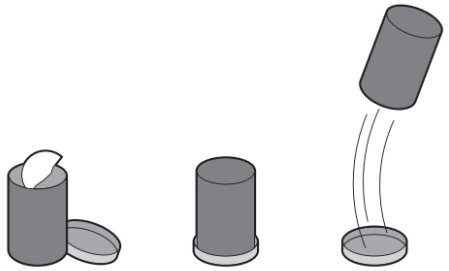


Image 1: Place film canister top down. As pressure builds up, it will "pop".

Crushed Tablet (increasing surface area):

1. Rinse and dry the film canister.
2. Use a mortar and pestle and pulverize (grind into powder) ½ tablet alka seltzer. Place the powder into a film canister.
3. Measure 2 mL of room temperature tap water with graduated cylinder. Snap the lid on and place top down on the ground .DO NOT SHAKE. Once it touches the ground, start the timer.
4. When you hear a “pop”, stop the timer. Record time and height.

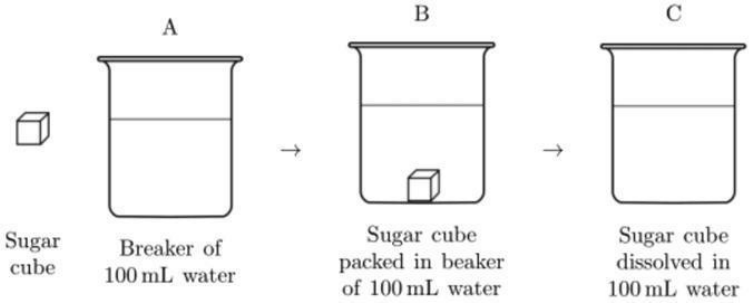
Station 2: Effect of changing temperature

Ice Cold Water

1. Fill up a graduated cylinder with 100 mL of ice-cold water. Pour this into a beaker.
2. Place one sugar cube in the beaker.
3. Time how long it takes to dissolve. Record.

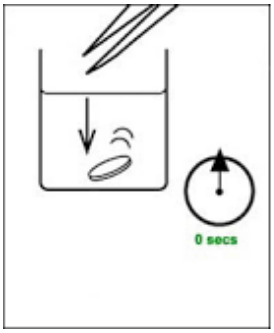
Warm Water

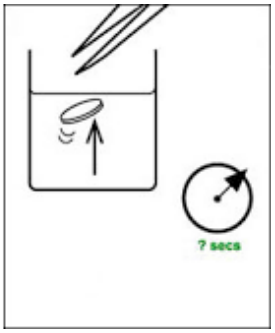
1. Fill up a graduated cylinder with 100 mL of warm water. Pour this into a beaker.
2. Place one sugar cube in the beaker.
3. Time how long it takes to dissolve. Record.



Station 3: Effect of adding catalyst

1. Measure 50 mL of 3% H_2O_2 and pour in test tube. Repeat for until you have 3 test tubes with 3% H_2O_2.
2. Using a hole puncher, punch out 16discs from the coffee filter.
3. With a tweezer, pick up one disc and dip it into the catalase solution.
4. Drop it into one of the test tube and start time the minute it hits the surface of the hydrogen peroxide. Time how long it takes to sink and float back to the top. Once it reaches the top, stop time and record.





5. Repeat steps 2-4 for 2 more disks, using a new 3% H_2O_2 test tube each time.
6. Rinse out the test tubes and the tweezer. Repeat steps 1-4 but this time, instead of using catalase solution, you will dip the disk in water.
    a. If it does not float after 120 seconds, record N/A.

Station 4: Effecting of changing concentration

Solution 1A: More concentrated

1. Use a graduated cylinder, measure 20 mL of dI water and add to a clean beaker.
2. Open a 500 mg vitamin c capsule and and add to the beaker.
3. Use a graduated cylinder to measure 12 mL of 10% povidine-iodine and add to the beaker.
4. Use a stirring rod to mix the solution and set it aside.

Solution 2A: Less concentrated

5. Use a graduated cylinder, measure 26 mL of dI water and add to a clean beaker.
6. Open a 500 mg vitamin c capsule and and add to the beaker.
7. Use a graduated cylinder to measure 6 mL of 10% povidine-iodine and add to the beaker.
8. Use a stirring rod to mix the solution and set it aside.

Solution B

9. Use a graduated cylinder to measure 80 mL of boiling water and add to a clean beaker.
10. Measure and add 400 mg cornstarch to the beaker. Use a stirring rod to mix until dissolved.
11. Use a graduated cylinder to measure 200 mL of 3% H_2O_2 and add to beaker.
12. Use a stirring rod to mix.
13. Separate solution B into 2 equal amounts using a second beaker.

Reaction:

14. Add one beaker of solution B into 1A and start time. Stop time when it changes color and record time.
15. Add one beaker of solution B into 2A and start time. Stop time when it changes color and record time.